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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/691,890	10/16/2003	Robert Urscheler	62739C	9015
109 7590 03/18/2008 The Dow Chemical Company Intellectual Property Section P.O. Box 1967 Midland, MI 48641-1967				
			EXAMINER BAREFORD, KATHERINE A	
			ART UNIT 1792	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/691,890

Applicant(s)

URSCHELER ET AL.

Examiner

Katherine A. Bareford

Art Unit

1792

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 January 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) See Continuation Sheet is/are pending in the application.
- 4a) Of the above claim(s) 28, 29, 51 and 52 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) See Continuation Sheet is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 10/07, 10/08
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☒ Other: copy of interview summary of 10/11/07

Continuation of Disposition of Claims: Claims pending in the application are 1,3,9,11,13-22,25,26,28-30,34,36-40,42-44,48,50-52,54-56,59-61,64-71,75-77,79, 80 and 85-88.

Continuation of Disposition of Claims: Claims rejected are 1,3,9,11,13-22,25,26,30,34,36-40,42-44,48,50,54-56,59-61,64-71,75-77,79,80 and 85-88.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 31, 2007 has been entered.

The specification amendment and Remarks filed with the RCE submission of October 31, 2007 have been entered and considered. The claims amendment of January 14, 2008 (filed in response to the Notice of Non-Compliant Amendment of Dec. 21, 2007) has been received and entered. With the entry of this amendment, claims 2, 4-8, 10, 12, 23, 24, 27, 31-33, 35, 41, 45-47, 49, 53, 57, 58, 62, 63, 72-74, 78 and 81-84 have been canceled, claims 28, 29, 51, 52 are withdrawn, and claims 1, 3, 9, 11, 13-22, 25, 26, 30, 34, 36-40, 42-44, 48, 50, 54-56, 59-61, 64-71, 75-77, 79, 80 and new claims 85-88 are present for examination.

Priority

2. In the specification, applicant indicates that this case is a continuation-in-part of 10/273,866 filed 10/17/02, which is a continuation-in-part of 10/257,172, filed 4/12/02.

However, a review of 10/257,172 indicates that the application does not provide support for the independent claims of the present application as the first and second components capable of reacting of claims 1, 30 and 80 are not provided in 10/257,152. Therefore, the earliest effective date for the present application is no earlier than 10/17/02.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 87-88 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

New claims 87 and 88 provide features of the magnitude of electrostatic field at a line where the curtain contacts the web. Applicant argues that support for this is found in the Examples of the specification, as the examples were conducted without the use of any special equipment that would be necessary to apply a non-ambient electrostatic field. The Examiner has reviewed the Examples and the disclosure as originally filed, and disagrees. They make no mention of the use or non-use of an electrostatic field.

While applicant can claim negative limitations if there is support found in the disclosure as originally filed, as discussed in MPEP 2173.05(i):

Any negative limitation or exclusionary proviso must have basis in the original disclosure. If alternative elements are positively recited in the specification, they may be explicitly excluded in the claims. See *In re Johnson*, 558 F.2d 1008, 1019, 194 USPQ 187, 196 (CCPA 1977) (“[the] specification, having described the whole, necessarily described the part remaining.”). See also *Ex parte Grasselli*, 231 USPQ 393 (Bd. App. 1983), *aff’d mem.*, 738 F.2d 453 (Fed. Cir. 1984). The mere absence of a positive recitation is not basis for an exclusion. (emphasis added)

Here we simply have the absence of a positive recitation in the specification. This is not basis for exclusion and a negative limitation as claimed. Therefore, the claims contain new matter. While equipment for a non-ambient electrostatic field is not described, this does not mean that it could or could not have been used, merely that it is not described in the examples.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were

made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1, 3, 9, 11, 13-22, 25, 26, 30, 34, 36-40, 42-44, 48, 50, 64-71, 75-77, 79, 80 and 85-88 are rejected under 35 U.S.C. 103(a) as being unpatentable over (A) Yokota (US 6,746,718) or (B) WO 01/76884 A1 (hereinafter '884) in view of Sunden et al (US 4710270), Kustermann (US 6146690), Takahashi et al (US 5885659) and Clarke et al (US 6103313).

** Yokota is a continuation of PCT/JP01/02497, which issued as WO 01/76884 A1. As a result, Yokota is understood to act as a translation for '884, and '884 is rejected for the same reasons as given for Yokota. **

Claims 1, 30, 80, 85: Yokota/'884 teaches a method of producing a coated substrate. Column 3, lines 10-40. The method includes forming a free flowing curtain. Column 2, lines 20-30 and column 17, lines 15-40. The curtain can be a composite multilayer curtain. Column 17, lines 15-40. The curtain has a first component and a second component capable of reacting with each other. Column 3, lines 20-40 and column 7, lines 1-55, for example. The curtain is contacted with a continuous web substrate. Column 17, lines 15-40. The curtain has at least two layers. Column 17, lines 15-40 and column 3, lines 20-40. One layer contains the first component. Column 3,

lines 20-40 and column 7, lines 1-55. A second layer contains the second component. Column 3, lines 20-40 and column 7, lines 1-55. The reaction type can be an anionic-cationic interaction where a positively charged polymer compound or low molecular weight compound interacts with a negatively charged low molecular weight or polymer compound, for example. Column 7, lines 1-55. The anionic material can be carboxymethyl cellulose. column 7, lines 33-45. The coating solutions may contain starches, which adjust viscosity. Column 12, lines 15-20. The coating solutions can also contain filler, such as kaolin or calcium carbonate. Column 13, lines 15-25. A top layer to ensure printability can be provided, thus providing a printable coated substrate from the process. Column 14, lines 20-35.

Claim 3: an internal layer can be present between the layers comprising the first component and the layer comprising the second component. Column 3, lines 20-40 and column 7, lines 1-55.

Claims 9, 34: the reaction between the first and second components can occur when applied to the substrate, for example. Column 6, lines 10-35.

Claim 11: the second component can be an anionic (negatively charged) composition. Column 7, lines 1-55.

Claims 13, 50: the substrate can have a weight of 60 g/m². Column 17, lines 30-40.

Claims 16, 38: the curtain can be three layers. Column 17, lines 30-40.

Claims 17-18, 39-40: the curtain can have a layer with at least one pigment.

Column 13, lines 15-30. The pigment can be talc, kaolin, calcium carbonate, etc. Column 13, lines 15-30.

Claims 19-20, 42: the curtain can have a layer with a binder. Column 12, lines 40-50. The binder can be polyvinyl alcohol, etc. column 12, lines 40-55.

Claims 21, 43: the curtain can have a layer with an optical brightening agent. Column 12, lines 30-40 (fluorescent brightener).

Claims 22, 44: the curtain can have a surfactant. Column 12, lines 25-35.

Claims 25, 30, 80: the substrate can be a basepaper. Column 17, lines 30-35.

Claims 65, 69: the curtain can be formed with a slide die. Column 17, lines 15-25.

Claim 66, 67, 70, 71, 80: the curtain can contain polyethylene oxide in any layer. Column 13, lines 15-30.

Claim 80: the coated paper product can be an inkjet recording material, for example. Column 17, lines 15-40.

Claim 86: the starch and cationic material can be in any layer, including the interface layer. Column 7, lines 10-25, column 11, lines 50-55 and column 12, lines 15-20.

Claims 87 and 88: The coating process is not described as requiring any electrostatic field. Column 15, lines 50-65, for example.

Yokota/'884 teaches all the features of these claims except (1) the cationic starch and anionic component (claims 1, 30, 80, 86), (2) the dried weight (claims 14, 15, 36, 37), (3) the solids content (claims 1, 30, 80), (4) the not precoated or precalendered paper

(claims 26, 48), (5) the web speed (claims 1, 39, 75-80), (6) the use of a slot die (claims 64, 68), (7) the specific absence of an electrostatic field beyond ambient (claims 87, 88). As to the dried weight, Yokota does teach various examples with varying composition amounts (see Example 5, column 16, line 45 through column 17, line 40, for example) with wet weights, and that these are dried. As to the solids content, Yokota does teach various examples with varying composition amounts (see Example 5, column 16, line 45 through column 17, line 40, for example). A variety of different layers can be applied. Column 5, lines 5-35. Yokota teaches that a variety of different layer combinations can be applied.

Sunden teaches that it is well known in the paper making art that when providing liquids with filler such as kaolin or chalk it is desirable to combine them with a reaction product of cationic starch and anionic carboxymethyl cellulose (CMC) or other anionic polymer to encapsulate the filler and provide high resulting paper strength. See column 1, lines 10-37, column 2, lines 35-40 and column 3, lines 15-25. This combination of materials results in a strong increase of viscosity. column 3, lines 15-30.

Kustermann teaches that when curtain coating, it is well known to provide that the solids content of the curtain can be between 5 and 80 percent, preferably between 30 and 75%. Column 2, lines 50-60. Furthermore, the web speed can be greater than 600 m/min, preferably more than 1000 m/min. Column 3, lines 1-10. The applied coating weight can be desirably between 3 and 30 g/m². column 2, lines 60-65.

Takahashi teaches a curtain coating process to be used with either a slot or slide die (that applies a multilayer curtain). Column 6, lines 45-60 and figures 1 and 4. Takahashi teaches that when performing such coating, a variety of coating materials can be used as the coating liquid regardless of solid content concentrations without having any restrictions as long as they are coating liquids capable of being applied by curtain coating. Column 7, lines 20-35. A variety of webs can be used, as well, including paper. Column 7, lines 35-40. Moreover, the coating speed can be 15-1500 m/min. Column 7, lines 40-45.

Clarke teaches that it is well known to provide high speed curtain coating using multilayer composites. Column 3, lines 55-68. Web speeds are shown over 1000 cm/sec (600 m/min). Figure 6 and column 7, lines 45-60. Clarke provides that speed control is based on conditions at the web and at the layer adjacent the receiving surface (that layer's viscosity, surface roughness of the substrate and creating an electrostatic field) without taking into account solid content. Column 3, line 60 through column 4, line 5. As to the further layers, the only condition that Clarke takes into account is the total flow rate per unit width of the curtain and the lowest density of the coating compositions. Column 5, lines 15-20 and claim 1. While Clarke shows the benefits of using an electrostatic field, Clarke indicates that good coatings can be achieved (with a narrower window of operating latitude) in the absence of an electric field at speeds up to and over 600 m/min. See column 7, line 40 through column 8, line 20 and figure 6.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to (1) modify Yokota/'884 to use cationic starch and an anionic polymer such as carboxymethyl cellulose as the cationic/anionic materials used as suggested by Sunden in order to provide a desirable coating of protected filler material, because Yokota/'884 teaches to separately apply materials that will increase in viscosity in contact with each other, such as cationic/anionic combinations, and that the coating layers can include fillers such as kaolin, anionic materials such as carboxymethyl cellulose, and also starches; and Sunden teaches that is well known that the combination of kaolin filler, anionic carboxymethyl cellulose and cationic starch will desirably provide encapsulated filler but also provide a strong increase in viscosity; so as a result, one of ordinary skill in the art would use the system of Yokota/'884 to provide the anionic and cationic materials separately and then allow them to react with the resulting increase in viscosity. The cationic material can be in the interface layer, as the different materials can be in any layer in Yokota/'884. (2) (3) It would further have been obvious to modify Yokota/'884 in view of Sunden to perform routine experimentation to optimize the weight of the dried coating and solids content depending on the specific information recording materials desired as suggested by Kustermann and Takahashi in order to provide a desirable coating, given the variety of coating possibilities given by Yokota and the variety of materials that can be present and the teaching by Kustermann that solids content in the range of 30-75 % are desirable for curtain coating (which would include the claimed range of 45% or more)

and that the coat weight can be 3-30 g/m² and the further teaching of Takahashi that conventional solids content can be used for single or multilayer curtain coating as long as the material is capable of being curtain coated. (4) It would further have been obvious to modify Yokota/'884 in view of Sunden, Kustermann and Takahashi to use paper that had not been precoated or precalendered with an expectation of desirable coating results, because Yokota/'884 and Takahashi teach to use paper in general, and untreated paper would be a well known material that would be a subset of paper that would be expected to work. (5) Moreover, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Yokota/'884 in view of Sunden to optimize the web speed as taught by Kustermann, Takahashi and Clarke in order to provide desirable quick coating application, because Yokota/'884 teaches curtain coating various numbers of layers of coating and Kustermann teaches that a desirable web speed for curtain coating is over 600 m/min and preferably over 1000 m/min and Takahashi teaches that desirable web speed for curtain coating can reach 1500 m/min, for example, and describes that liquid can be used regardless of solid content concentrations as long as capable of being applied by curtain coating, and Clarke teaches that high speed curtain coating can be achieved based on the control of the conditions of the lowest layer, indicating that solid content of the layers would not affect the speeds reached, as long as the lowest layer had the optimum conditions. (6) Moreover, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Yokota/'884 in view of Sunden, Kustermann, Takahashi

and Clarke to use either a slot or slide die as taught by Takahashi in order to provide desirable coating application, because Yokota/'884 teaches curtain coating various numbers of layers of coating and Takahashi teaches that either slot or slide dies can be desirably used for curtain coating. (7) It further would have been obvious to modify Yokota/'884 in view of Sunden, Kustermann, Takahashi and Clarke to perform the coating in the absence of an electrostatic field beyond ambient with an expectation of desirable coating results, because Yokota/'884, Kustermann and Takahashi provide no indication that added electrostatic fields are needed when performing curtain coating, even at high speeds, and Clarke specifically indicates that high speed curtain coating can be performed, even at 600 m/min without the presence of an added electric field, and therefore, one of ordinary skill would expect that the speeds described by Kustermann and Takahashi can be used in the absence of an electric field beyond ambient.

8. Claims 54-56 and 59-61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yokota or WO 01/76884 in view of Sunden, Kustermann, Takahashi and Clarke as applied to claims 1, 3, 9, 11, 13-22, 25, 26, 30, 34, 36-40, 42-44, 48, 50, 64-71, 75-77, 79, 80 and 85-88 above, and further in view of either Schweizer Article (Premetered Coating Processes: Advantages and Applications) (as provided by applicant) or Hughes (US 3508947).

** Yokota is a continuation of PCT/JP01/02497, which issued as WO 01/76884

A1. As a result, Yokota is understood to act as a translation for '884, and '884 is rejected for the same reasons as given for Yokota. **

Yokota/'884 in view of Sunden, Kustermann, Takahashi and Clarke teaches all the features of these claims except the number of coating layers.

Schweizer Article teaches that when performing curtain coating it is well known to apply coatings at speed up to 30 m/s (1800 m/min) and with layer numbers up to over 10. See Table 1. The article also teaches that that both slot dies and slide dies are well known forms of curtain coating. See figure 1.

Hughes teaches that when performing multilayer curtain coating, it is well known to provide 10 or more individual layers. Column 14, lines 65-75 and figure 1.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Yokota/'884 in view of Sunden, Kustermann, Takahashi and Clarke to optimize the number of layers applied to up to 10 or more as suggested by Schweizer Article or Hughes in order to provide a desirable number of applied materials on the web, because Yokota/'884 in view of Sunden, Kustermann, Takahashi and Clarke teaches curtain coating various numbers of layers of material on the web and Schweizer Article and Hughes both teach that when multilayer curtain coating, it is well known that up to 10 or more layers can be applied.

9. Applicant's arguments with respect to claims 1, 3, 9, 11, 13-22, 25, 26, 30, 34, 36-40, 42-44, 48, 50, 54-56, 59-61, 64-71, 75-77, 79, 80 and 85-88 have been considered but are moot in view of the new ground(s) of rejection.

The Examiner has provided the new reference to Sunden as to the specific requirements of a cationic starch and anionic component as now claimed.

As to the arguments by applicant the Examiner notes that: As to the arguments at pages 13-19 of the October 31, 2007 amendment, these were substantially addressed by the Examiner at pages 19-24 of the Sept. 11, 2007 Office action, and her position remains, as discussed except (1) as the arguments as to the use of cationic starch and anionic component, note the addition of the Sunden reference, (2) as to the discussion of comparative Experiment B and Example 5 of applicant, at page 19 of the October 31, 2007 amendment, the Examiner notes that (a) the Examples are drawn to single points and are not commensurate in scope with the claims, and (b) Sunden also teaches the desirability of using the cationic starch/anionic component combination when using filler such as kaolin (the Examiner notes that the Examples use clay); and the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katherine A. Bareford whose telephone number is (571) 272-1413. The examiner can normally be reached on M-F(6:00-3:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy H. Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Katherine A. Bareford/
Primary Examiner, Art Unit 1792